REMARKS

These amendments and remarks are being filed in response to the Office Action dated June 6, 2007. For the following reasons this application should be allowed and the case passed to issue.

No new matter is introduced by this amendment. The amendments to claims 1 and 7-9 are supported by the specification at page 22, line 22; page 23, line 5; and page 34, line 17, which clearly discloses the use of JIS-SUJ2 steel. The elemental amounts recited in the present specification merely represent a specific example of JIS-SUJ2 steel. As shown in the attached copies from the Japanese Industrial Standards (JIS) and translation, the composition of JIS-SUJ2 steel actually comprises the claimed ranges of the composition elements.

Claims 1, 3, and 5-30 are pending in this application. Claims 1, 3, and 5-30 are rejected. Claims 1, 7, 8, and 9 have been amended. Claims 2 and 4 were previously canceled.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 3, 5, 7, 10, 16, 19, 25, and 28 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Brothers (U.S. Pat. No. 6,328,009) in view of Takemura et al. (U.S. Pat. No. 6,224,688) (Takemura et al. `688) and Takemura et al. (U.S. Pat. No. 6,342,109) (Takemura et al. `109) and further in view of Ueda et al. (JP 10-204612).

Claims 1, 3, 5, 7, 13, 25, and 28 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Faville et al. (U.S. Pat. No. 5,979,383) in view of Takemura et al. `688 and Takemura et al. `109 and further in view of Ueda et al.

Claims 1, 3, 5, 7, 10, 22, 25, and 28 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Bando (JP63-185917) in view of Takemura et al. `688 and Takemura et al. `109 and further in view of Ueda et al.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

An aspect of the invention, per claim 1, is a full-type rolling bearing formed of an outer ring, an inner ring and rollers that are made of steel, wherein at least one of the outer ring, inner ring and rollers contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, has a carbonitrided layer in its surface layer, and the austenite crystal grain size number of the surface layer is greater than 10. After at least one of the outer ring, inner ring and rollers is carbonitrided at a carbonitriding temperature equal to or higher than the A1 transformation temperature, the at least one of the outer ring, inner ring and rollers is cooled to a temperature lower than the A1 transformation temperature and then heated to a quenching temperature of 790°C - 815°C and thereby quenched.

Another aspect of the invention, per claim 7, is a roller cam follower of an engine comprising an outer ring being in rolling contact with a cam shaft of the engine. A roller shaft is located inside the outer ring and fixed to a cam follower body and bearing elements are placed between the outer ring and the roller shaft. At least one of the outer ring, roller shaft and bearing elements contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%,

chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, has a carbonitrided layer and austenite crystal grains in at least a surface layer are made fine to have a grain size number greater than 10. After at least one of the outer ring, roller shaft, and bearing elements is carbonitrided at a carbonitriding temperature equal to or higher than the A1 transformation temperature, the at least one of the outer ring, roller shaft and bearing elements is cooled to a temperature lower than the A1 transformation temperature and then heated to a quenching temperature of 790°C - 815°C and thereby quenched.

The Examiner averred that Brothers, Faville et al., and Bando disclose full type rolling bearings formed of an outer ring, an inner ring, and rollers. The Examiner acknowledged that Brothers, Faville et al., and Bando do not disclose that at least one of the outer ring, roller shaft, and bearing elements are made of steel, has a carbonitrided surface layer, an austenite crystal grain size number greater than 10, and a non-diffusible hydrogen content of at most 0.5 ppm. The Examiner relied on the teaching of Takemura et al. `688 of rolling bearings that have a carbonitrided layer and a crystal grain size greater than 11 to assert that it would have been obvious to use the steel of Takemura et al. `688 in the rolling bearings of Brothers, Faville et al., and Bando to achieve long life and high reliability. The Examiner relied on the teaching of Takemura et al. `109 of keeping the diffusible hydrogen content to not more than 0.1 ppm in order to enhance brittleness and the alleged teaching of Ueda et al. to assert that a non-diffusible hydrogen content of less than 0.5 ppm to prevent soot would have been obvious. The Examiner further asserted that Takemura et al. (U.S. Pat. No. 6,440,232) (Takemura et al. `232) disclose the inherent manufacturing steps of carbonitriding (Fig. 3A). The Examiner further referred to

Maeda et al. as showing a quenching temperature of 800 °C to 840 °C to adjust the size of the structure.

Brothers, Faville et al., Bando, Takemura et al. `688, Takemura et al. `109, Takemura et al. `232, Ueda et al., and Maeda et al., whether taken alone, or in combination, do not suggest the claimed full-type rolling bearing and roller cam follower because the cited references do not suggest at least one of the outer ring, inner ring and rollers contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, as required by claim 1; or the at least one of the outer ring, roller shaft and bearing elements has a carbonitrided layer and contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, as required by claim 7.

Ueda et al. teach (Table 1) steel having a carbon content of at most 0.41%, which is much less than the claimed 0.95% to 1.10% carbon. Furthermore, Ueda et al. disclose Mn, Ni, and Mo concentrations which are higher than the claimed range. Therefore, combining the steel composition of Ueda et al. with Brothers, Faville et al., Bando, Takemura et al. `688, Takemura et al. `109, Takemura et al. `232 would not result in the claimed full-type rolling bearing and roller cam follower. Furthermore, the steel of Ueda et al. is subjected to carburizing treatment or

carbonitriding treatment and thereafter heated under vacuum, unlike the steel in the present invention, to reduce the hydrogen content. Thus, the steel of Ueda et al. is very different from the steel in the claimed full-type rolling bearing and roller cam follower. The steel used in the present invention has a non-diffusible hydrogen content of at most 0.5 ppm by the claimed heat treatment, without heating it under vacuum, as in Ueda et al.

The present claims are further distinguishable because the cited references do not suggest the unexpected results in a number of critical properties of the claimed full-type rolling bearing and roller cam followers. As disclosed in the present specification, the claimed full-type rolling bearing and roller cam followers have unexpectedly improved relative rolling life, as illustrated in Table 3; unexpectedly improved peeling strength, relative peeling strength, relative crack strength, and relative crack fatigue strength, as in Table 4; and unexpectedly reduced hydrogen content and stress fracture in Table 9.

Furthermore, contrary to the Examiner's assertion, Takemura et al. `232 do not disclose the **inherent** manufacturing steps of carbonitriding. Takemura et al. `232 disclose three different carbonitriding procedures in Fig. 3, thus, it is clear that no single carbonitriding process is **inherent**, as averred by the Examiner.

Claim 6 was rejected under 35 U.S.C. 35 § 103(a) as obvious over Brothers in view of Takemura et al. `688 and further in view of Yoshida et al. (U.S. Pat. No. 5,803,993). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Examiner acknowledged that Brothers does not disclose a compression residual stress of at least 500 MPa. The Examiner relied on the teaching of Yoshida et al. of compression residual strength of 850 MPa to assert that it would have been obvious to modify the system of

Brothers by providing a residual stress of at least 850 MPa in order to raise the fatigue strength of the device.

The combination of Yoshida et al. with Brothers and Takemura et al. `688 does not suggest the claimed full-type rolling bearing because Yoshida et al. do not cure the deficiencies of Brothers and Takemura et al. `688 in that Yoshida et al. do not suggest that at least one of the outer ring, inner ring and rollers contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, as required by claim 1.

Claims 8, 11, 17, 20, 26, and 29 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Brothers in view of Hirakawa et al. (U.S. Pat. No. 6,012,851), Kim et al. (*Journal of Heat Treat.)* and Takemura et al. `109, and further in view of Ueda et al.

Claims 8, 14, 26, and 29 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Faville et al. in view of Hirakawa et al., Kim et al., and Takemura et al. `109, and further in view of Ueda et al.

Claims 8, 11, 23, 26, and 29 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Bando in view of Hirakawa et al., Kim et al., and Takemura et al. `109, and further in view of Ueda et al.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

An aspect of the invention, per claim 8, is a roller cam follower of an engine comprising an outer ring being in rolling contact with a cam shaft of the engine. A roller shaft is located inside the outer ring and fixed to a cam follower body and bearing elements are placed between the outer ring and the roller shaft. At least one of the outer ring, roller shaft and bearing elements contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, has a carbonitrided layer and has a fracture stress of at least 2650 MPa. After at least one of the outer ring, roller shaft, and bearing elements is carbonitrided at a carbonitriding temperature equal to or higher than the A1 transformation temperature, the at least one of the outer ring, roller shaft and bearing elements is cooled to a temperature lower than the A1 transformation temperature and then heated to a quenching temperature of 790° - 815°C and thereby quenched.

The Examiner acknowledged that Brothers, Faville et al., and Bando do not disclose that at least one of the outer ring, roller shaft, and bearing elements has a carbonitrided layer, fracture stress of at least 2650 Mpa, and the non-diffusible hydrogen content. The Examiner relied on the teaching of Hirakawa et al. of rolling bearings that have a carbonitrided layer and the teaching of Kim et al. that carbonitrided steel can have a fracture stress of 3220 MPa to assert that it would have been obvious to provide a carbonitrided layer to improve physical properties and thereby enhance longevity of the device. The Examiner relied on the teaching of Takemura et al. `109 of keeping the diffusible hydrogen content to not more than 0.1 ppm in order to enhance brittleness and the alleged teaching of Ueda et al. to assert that a non-diffusible hydrogen content of less

than 0.5 ppm to prevent soot to assert that the hydrogen content of at most 0.5 ppm would have been obvious. The Examiner further asserted that Takemura et al. `232 disclose the inherent manufacturing steps of carbonitriding (Fig. 3A). The Examiner further referred to Maeda et al. as showing a quenching temperature of 800 °C to 840 °C to adjust the size of the structure.

Brothers, Faville et al., Bando, Kim et al., Hirakawa et al., Takemura et al. `109, Takemura et al. `232, Ueda et al., and Maeda et al., whether taken alone, or in combination, do not suggest the claimed roller cam follower because the cited references do not suggest at least one of the outer ring, roller shaft and bearing elements has a carbonitrided layer and contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, as required by claim 8.

As explained above, Ueda et al. teach (Table 1) steel having a carbon content of at most 0.41%, which is much less than the claimed 0.95% to 1.10% carbon. Furthermore, Ueda et al. disclose Mn, Ni, and Mo concentrations which are higher than the claimed range. Therefore, combining the steel composition of Ueda et al. with Brothers, Faville et al., Bando, Hirakawa et al., Takemura et al. `109, Takemura et al. `232 would not result in the claimed full-type rolling bearing and roller cam follower. Furthermore, the steel of Ueda et al. is subjected to carburizing treatment or carbonitriding treatment and thereafter heated under vacuum, unlike the steel in the present invention, to reduce the hydrogen content. Thus, the steel of Ueda et al. is very different from the steel in the claimed roller cam follower. The steel used in the present invention has a

non-diffusible hydrogen content of at most 0.5 ppm by the claimed heat treatment, without heating it under vacuum, as in Ueda et al.

The present claims are further distinguishable because the cited references do not suggest the unexpected results in a number of critical properties of the claimed roller cam followers. As disclosed in the present specification, the claimed roller cam followers have the unexpected improvements in crystal grain size, Charpy impact, and relative rolling fatigue life, as shown in Table 9 of the specification obtained by samples having the claimed secondary quenching temperature, non-diffusible hydrogen content, and fracture stress (see Samples B and C).

Furthermore, contrary to the Examiner's assertion, Takemura et al. `232 do not disclose the **inherent** manufacturing steps of carbonitriding. Takemura et al. `232 disclose three different carbonitriding procedures in Fig. 3, thus, it is clear that no single carbonitriding process is **inherent**, as averred by the Examiner.

In addition, there is no motivation to substitute the steel of Takemura et al. `109 with its costly high chromium content for the steel of Hirakawa et al.

Claims 9, 12, 18, 21, 27, and 30 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Brothers in view of Hirakawa et al. and Takemura et al. `109, and further in view of Ueda et al.

Claims 9, 15, 27, and 30 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Faville et al. in view of Hirakawa et al. and Takemura et al. `109, and further in view of Ueda et al.

Claims 9, 12, 24, 27, and 30 were rejected under 35 U.S.C. 35 § 103(a) as obvious over Bando in view of Hirakawa et al., and Takemura et al. `109, and further in view of Ueda et al.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

An aspect of the invention, per claim 9, is a roller cam follower of an engine comprising an outer ring being in rolling contact with a cam shaft of the engine. A roller shaft is located inside the outer ring and fixed to a cam follower body and bearing elements are placed between the outer ring and the roller shaft. Wherein at least one of the outer ring, roller shaft and bearing elements has a carbonitrided layer and contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities. After at least one of the outer ring, roller shaft, and bearing elements is carbonitrided at a carbonitriding temperature equal to or higher than the A1 transformation temperature, the at least one of the outer ring, roller shaft and bearing elements is cooled to a temperature lower than the A1 transformation temperature and then heated to a quenching temperature of 790° - 815°C and thereby quenched.

The Examiner acknowledged that Brothers, Faville et al., and Bando do not disclose that at least one of the outer ring, roller shaft, and bearing elements has a carbonitrided layer and hydrogen content of at most 0.5 ppm. The Examiner relied on the teaching of Takemura et al. `109 of keeping hydrogen content to not more than 0.1 ppm in order to enhance brittleness and the alleged teaching of Ueda et al. to assert that a non-diffusible hydrogen content of less than

0.5 ppm to prevent soot to assert that the hydrogen content of at most 0.5 ppm would have been obvious.

Brothers, Faville et al., Bando, Kim et al., Hirakawa et al., Takemura et al. `109, Takemura et al. `232, Ueda et al., and Maeda et al., whether taken alone, or in combination, do not suggest the claimed roller cam follower because the cited references do not suggest at least one of the outer ring, roller shaft and bearing elements has a carbonitrided layer and contains a non-diffusible hydrogen content of at most 0.5 ppm, carbon in an amount of 0.95% to 1.10%, silicon in an amount of 0.15% to 0.35%, manganese in an amount of at most 0.5%, phosphorous in an amount of at most 0.025%, sulfur in an amount of at most 0.025%, chromium in an amount of 1.30% to 1.60%, and molybdenum in an amount of less than 0.08%, with the remainder formed of Fe and unavoidable impurities, as required by claim 9.

As explained above, Ueda et al. teach (Table 1) steel having a carbon content of at most 0.41%, which is much less than the claimed 0.95% to 1.10% carbon. Furthermore, Ueda et al. disclose Mn, Ni, and Mo concentrations which are higher than the claimed range. Therefore, combining the steel composition of Ueda et al. with Brothers, Faville et al., Bando, Hirakawa et al., Takemura et al. `109, Takemura et al. `232 would not result in the claimed roller cam follower. Furthermore, the steel of Ueda et al. is subjected to carburizing treatment or carbonitriding treatment and thereafter heated under vacuum, unlike the steel in the present invention, to reduce the hydrogen content. Thus, the steel of Ueda et al. is very different from the steel in the claimed roller cam follower. The steel used in the present invention has a non-diffusible hydrogen content of at most 0.5 ppm by the claimed heat treatment, without heating it under vacuum, as in Ueda et al.

The present claims are further distinguishable because the cited references do not suggest the unexpected results in a number of critical properties of the claimed roller cam followers. As disclosed in the present specification, the claimed roller cam followers have unexpected improvements in crystal grain size, Charpy impact, and relative rolling fatigue life, as shown in Table 9 of the specification obtained by samples having the claimed secondary quenching temperature, non-diffusible hydrogen content, and fracture stress (see Samples B and C).

Furthermore, contrary to the Examiner's assertion, Takemura et al. `232 do not disclose the **inherent** manufacturing steps of carbonitriding. Takemura et al. `232 disclose three different carbonitriding procedures in Fig. 3, thus, it is clear that no single carbonitriding process is **inherent**, as averred by the Examiner.

In addition, there is no motivation to substitute the steel of Takemura et al. `109 with its costly high chromium content for the steel of Hirakawa et al.

The dependent claims are allowable for at least the same reasons as the independent claims and are further distinguishable over the cited references.

In view of the above remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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表2　化学成分

単位　%

種類の記号	C	Si	Mn	P	S	Cr	Mo
SUJ 1	0.95～1.10	0.15～0.35	0.50以下	0.025以下	0.025以下	0.90～1.20	－
SUJ 2	0.95～1.10	0.15～0.35	0.50以下	0.025以下	0.025以下	1.30～1.60	－
SUJ 3	0.95～1.10	0.40～0.70	0.90～1.15	0.025以下	0.025以下	0.90～1.20	－
SUJ 4	0.95～1.10	0.15～0.35	0.50以下	0.025以下	0.025以下	1.30～1.60	0.10～0.25
SUJ 5	0.95～1.10	0.40～0.70	0.90～1.15	0.025以下	0.025以下	0.90～1.20	0.10～0.25

備考1.　不純物としてのNi及びCuは，それぞれ0.25%を超えてはならない。ただし，線材のCuは，0.20%以下とする。

SUJ 1，SUJ 2 及びSUJ 3 のMoは，0.08%を超えてはならない。

2.　受渡当事者間の協定によって，表2以外の元素を0.25%以下添加してもよい。

3.　製品分析を行う場合は，14.1の試験を行い，その許容変動値は，JIS G 0321の表3（製品分析の許容変動値）による。

❺　形状，寸法及び許容差

5.1　標準寸法　熱間圧延丸鋼の標準径は，表3による。

表3　標準径

単位　mm

標準径									
15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	(31)	32	33	34
(35)	36	37	38	(39)	40	42	44	46	(48)
49	50	51	(54)	55	60	(64)	65	(66)	70
75	(76)	80	83	(84)	(88)	90	93	99	104
114	(119)	124	130						

備考　（　）を付けたものは，新しい設計にはなるべく用いない。

5.2　寸法の許容差及び偏径差　鋼材の寸法許容差及び偏径差は，冷間引抜線及び丸鋼の場合は表4，熱間圧延丸鋼の場合は表5による。

表4　径の許容差及び偏径差（冷間引抜鋼材）

単位　mm

冷間引抜線			冷間引抜丸鋼		
径	許容差	偏径差	径	許容差	偏径差
2以下	±0.02	0.02以下	15以下	±0.05	0.05以下
2を超え　7以下	±0.03	0.03以下	15を超え　25以下	±0.10	0.10以下
7を超え　15以下	±0.04	0.04以下	25を超え　35以下	±0.15	0.15以下
15を超え　20以下	±0.05	0.05以下			

備考　冷間引抜線は，断面形状が円形のものをいう。

表5　径の許容差及び偏径差（熱間圧延丸鋼）

単位　mm

熱間圧延丸鋼		
径	許容差	偏径差
15以下	±0.20	0.30以下
15を超え　25以下	±0.25	0.35以下
25を超え　35以下	±0.30	0.45以下
35を超え　50以下	±0.35	0.50以下
50を超え　80以下	±0.50	0.70以下
80を超え　100以下	±0.75	1.00以下
100を超え　125以下	±1.00	1.50以下
125を超え　160以下	±1.50	2.00以下

5.3　曲がり　鋼材の曲がり許容値は，冷間引抜丸鋼及び切削用熱間圧延丸鋼の場合には，表6による。また，鍛造用丸鋼の場合には，実用的にまっすぐでなければならない。

表6　曲がりの許容値

冷間引抜丸鋼		熱間圧延丸鋼	
径	許容値	径	許容値
35 mm以下	1 000 mmに付き1.0 mm以下とし，全長に対しては1.0 mm×全長(mm)/1 000 mm以下とする。	100 mm以下	1 000 mmに付き1.5 mm以下とし，全長に対しては1.5 mm×全長(mm)/1 000 mm以下とする。
		100 mmを超え160 mm以下	1 000 mmに付き2.0 mm以下とし，全長に対しては2.0 mm×全長(mm)/1 000 mm以下とする。

5.4　その他　5.2及び5.3に規定した以外の鋼材の形状，寸法の許容差及び許容値は，受渡当事者間の協定による。

❻　外観

6.1　表面状態　鋼材の表面には，使用上有害な欠点があってはならない。

6.2　きずの許容限度及びきず取り基準

6.2.1　切削用丸鋼（熱間圧延丸鋼）　きずの深さの許容限度は，表7による。

English Translation of Portion of JIS Describing SUJ2

Note:

1. Ni and Cu as impurity each must not exceed 0.25%, although Cu as wire is 0.20% or less.

SUJ1, SUJ2 and SUJ3 must not contain Mo exceeding 0.08%.

2. An element other than those shown in table 2 may be added in an amount of at most 0.25% according to an agreement concluded between the parties giving and given the product.

3. If the product is analyzed it is tested as indicated in section 14.1 and its tolerable variation value follows JIS G 0321, table 3 (indicating a tolerable variation value in product analysis).